REMARKS

Claims 1-24 and 49 are present in the application. In view of the remarks that follow, Applicants respectfully request reconsideration.

Objection to Premature Finality

Applicants respectfully traverse the finality of the Office Action. More specifically, MPEP §706.07(a) specifies that an Office Action shall not be final "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement." The claim rejections in the present Office Action are not identical to the claim rejections in the most recent prior Office Action, but instead include changes that raise new issues.

By way of example and not limitation, independent Claim 7 is an originally-filed claim that has never been amended. The most recent prior Office Action (mailed October 15, 2009) rejected Claim 7 based on the embodiment shown in Figures 1A and 1B of Harada U.S. Patent Application Publication No. 2002/0005583. The present Office Action presents a different rejection of Claim 7 that is based on a combination of (1) the embodiment shown in Figures 1A and 1B of Harada, and (2) a different embodiment shown in Figures 36A and 36B of Harada. This is a new ground of rejection for Claim 7.

The same problem exists in regard to independent Claim 16, which was not amended in Applicants' most recent prior Response (filed December 28, 2009). The October 15 Office Action rejected Claim 16 based on the embodiment shown in Figures 1A and 1B of Harada, whereas the present Office Action presents a different rejection of Claim 16 that is based on a combination of (1) the embodiment shown in Figures 1A and 1B of Harada, and (2) the different embodiment shown in Figures 36A and 36B of Harada. This is a new ground of rejection for Claim 16.

The same problem also exists in regard to independent Claim 1. Applicants' last Response (filed December 28, 2009) made a very minor amendment in the middle of Claim 1, by changing a capital letter to a lower-case letter ("Corner" to "corner"). This was merely a grammatical improvement, and had no effect whatsoever on the scope of Claim 1. The October 15 Office Action rejected Claim 1 based on the embodiment shown in Figures 1A and 1B of Harada, whereas the present Office Action presents a different rejection of Claim 1 that is based on a combination of (1) the embodiment shown in Figures 1A and 1B of Harada, and (2) the different embodiment shown in Figures 36A and 36B of Harada. This is a new ground of rejection for Claim 1.

These multiple new grounds of rejection are not in response to any claim amendments made in Applicants' last Response, nor are they based on art newly-submitted in an information disclosure statement. Instead, in the words of MPEP §706.07(a), this is a situation "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement." Consequently, in accord with MPEP §706.07(a), it is respectfully submitted that the finality of the pending Office Action is not proper, and must be withdrawn. Notice to that effect is respectfully requested.

Independent Claim 1

Independent Claim 1 stands rejected under 35 U.S.C. §102 as anticipated by Harada U.S. Patent Application Publication No. 2002/0005583. This ground of rejection is respectfully traversed. In MPEP §2131, the PTO cites relevant case law, and explains that for a reference to anticipate a claim under §102, the reference (1) must disclose each and every element recited in the claim, and (2) must also disclose all of these elements arranged in the manner recited in the claim. In order to meet these requirements, a rejection under §102 must be based on **one and only one embodiment** in the specified reference. (If the Examiner is not familiar with this requirement, the Examiner may wish to read the paragraph bridging pages 10-11 in the Decision on Appeal issued by the PTO Board of Appeals on November 10, 2009 for U.S. Serial No. 09/812,400 in *Ex parte Ludwig*).

The present rejection of Claim 1 is explained in the paragraph appearing at the bottom of page 2 of the present Office Action, and on pages 3-4. The last paragraph on page 2 mixes references to two distinctly different embodiments in Harada, which are (1) the embodiment of Figures 1A-1B and (2) the embodiment of Figures 36A-36B. Pages 3-4 of the Office Action present marked-up copies of Figures 1A, 1B, 36A and 36B of Harada. Harada explains in paragraph [0072] that Figures 1A-1B show a "first embodiment", and explains in paragraph [0107] that Figures 36A-36B show a "fifth embodiment". In contrast, a proper §102 rejection of Claim 1 must discuss **one and only one embodiment** in Harada. The new rejection of Claim 1 in the present Office Action is therefore not proper, and it is respectfully submitted that this §102 rejection must be withdrawn.

A further problem with this §102 rejection is that Claim 1 is not anticipated by either the embodiment shown in Figures 1A-1B of Harada, or the embodiment shown in Figures 36A-36B of Harada. In this regard, Applicants' Claim 1 recites:

> A structure for corners of metallic features of semiconductor integrating circuits, comprising:
>
> corner angles of **all** corners of metallic features, imbedded in dielectric layers, which are greater than 90 degrees.
>
> (Emphasis added).

Claim 1 thus requires that the corner angles of **all** corners of metallic features embedded in dielectric layers be greater than 90°. But this is not the case in the embodiment shown in Figure 1A of Harada, due for example to the fact that the L-shaped metallic feature 17 has corners that are not greater than 90°. Nor is this the case in the embodiment shown in Figure 36A of Harada, which shows the same L-shaped metallic feature (no reference numeral) with corners that are not greater than 90°. Thus, the embodiment shown in Figure 1A of Harada does not disclose everything recited in Claim 1, and therefore does not meet the legal requirements for anticipation, as summarized in MPEP §2131. Similarly, the embodiment shown in Figure 36A of Harada does not disclose everything recited in Claim 1, and therefore does not meet the legal requirements for anticipation, as summarized in MPEP §2131.

On page 10 of the Office Action, the Examiner asserts that her rejection does not rely on the metallic element shown at 17 in Figure 1A, or the similar metallic element shown in Figure 36A. However, it is respectfully submitted that the Examiner's argument on this point has no merit. Claim 1 explicitly requires that the corner angles of **all** corners of metallic features embedded in dielectric layers be greater than 90°. Consequently, when evaluating whether Claim 1 reads onto the embodiment of Figure 1A or onto the embodiment of Figure 36A, it is necessary to take into account "corner angles of all corners of metallic features . . . imbedded in dielectric layers", and this necessarily includes the metallic element shown at 17 in Figure 1A, or the similar metallic element shown in Figure 36A. And when these metallic elements are taken into account, Claim 1 is not anticipated by either the embodiment of Figures 1A-1B, or by the embodiment of Figures 36A-36B.

On pages 10-11 of the Office Action, the Examiner also argues that

> applicants' original specification and claims do not exclude some other metallic elements having different shape or size in the device. Furthermore, it is well known in the semiconductor art that in the semiconductor device, there are many metallic elements such as passive components, capacitors or plugs imbedded in dielectric layers with different size and shape.

However, it is not clear why the Examiner believes this discussion of size and shape has any relevance to Applicants' Claim 1. If a metallic element is embedded in a dielectric, then the issue is not the shape or size of that metallic element. Instead, the issue is whether "corner angles of **all** corners of . . . [that] metallic feature . . . are greater than 90 degrees", as required by Claim 1.

On page 11 of the Office Action, the Examiner goes on to argue that:

> applicants only describe and show in the drawings a partial view of the device, and not the whole view of the device. Lastly, applicants' claims do not recite "all metallic features in the semiconductor device", other than the particular bonding pads (metallic features), or in the claims or the specification.

However, as to the §102 rejection of Claim 1, the issue is not what Applicants show in the drawings or describe in the specification. Nor is it relevant that Claim 1 does not happen to include the particular phrase coined by the Examiner (i.e. "all metallic features in the semiconductor device"). The issue is the specific language of Claim 1 as presented by Applicants. Claim 1 explicitly refers to "**all** corners of metallic features . . . imbedded in dielectric layers" (emphasis added). Thus, only metallic features embedded in dielectric layers are relevant to Claim 1, but the language of Claim 1 is quite clear that it is referring to all corners of all metallic features embedded in dielectric material. The Examiner's comments about the disclosure of the specification and drawings, and the hypothetical claim language coined by the Examiner, have no relevance at all to whether the actual language of Claim 1 is anticipated by the indicated portions of Harada.

For each of the different reasons discussed above, it is respectfully submitted (1) that the §102 rejection of Claim 1 improperly relies on multiple different embodiments in Harada, and (2) that none of the multiple cited embodiments in Harada discloses all of the limitations in Claim 1. Claim 1 is therefore believed to be allowable over the indicated portions of Harada, and notice to that effect is respectfully requested.

Independent Claim 7

Independent Claim 7 stands rejected under 35 U.S.C. §102 as anticipated by Harada. This ground of rejection is respectfully traversed, for the following reasons.

First, an explanation of the §102 rejection of Claim 7 appears in lines 11-16 on page 5 of the present Office Action. This explanation mixes references to two distinctly different embodiments in Harada, which are (1) the embodiment of Figures 1A-1B and (2) the embodiment of Figures 36A-36B. Pages 3-4 of the Office Action present marked-up copies of Figures 1A, 1B, 36A and 36B of Harada. Harada explains in paragraph [0072] that Figures 1A-1B show a "first embodiment", and explains in paragraph [0107] that Figures 36A-36B show a "fifth embodiment". In contrast, as discussed above in association with Claim 1, a proper §102 rejection of Claim 7 must discuss **one and only one embodiment** in Harada. The new rejection of Claim 7 in the present Office Action is therefore not proper, and it is respectfully submitted that this §102 rejection must be withdrawn.

A further problem with this §102 rejection is that Claim 7 is not anticipated by either the embodiment shown in Figures 1A-1B of Harada, or the embodiment shown in Figures 36A-36B of Harada. In this regard, Applicants' Claim 7 recites:

> A structure for corners of metallic features of semiconductor integrating circuits, comprising:
>
> Corners of **all** metallic features, imbedded in dielectric layers, which are formed in n-fold clipped corner configurations, with n being greater than 0. (Emphasis added).

The device in Figure 1A of Harada has a metallic feature 17 that is embedded in dielectric material, with 90° corners that are **not** clipped. The device in Figure 36A of Harada has a similar metallic feature (no reference numeral) that is embedded in dielectric material, with 90° corners that are **not** clipped. As evident from the claim limitations quoted above, Claim 7 requires that the corners of **all** metallic features embedded in dielectric layers be n-fold clipped corner configurations, where n is greater than 0. But this is not the case with the device shown in Figure 1A of Harada, or the device shown in Figure 36A of Harada, due for example to the fact that each such device has a metallic feature (17 in Figure 1A) with 90° corners that are not clipped. Accordingly, Figure 1A of Harada does not disclose everything recited in Claim 7, and therefore does not meet the legal requirements for anticipation, as summarized in MPEP §2131. Similarly, Figure 36A of Harada does not disclose everything recited in Claim 7, and therefore does not meet the legal requirements for anticipation, as summarized in MPEP §2131.

On pages 10-11 of the Office Action, the Examiner offers several arguments against Applicants' position. These arguments have already been discussed above in association with Claim 1. For reasons similar to those discussed above in association with Claim 1, these arguments by the Examiner are believed to be without merit in regard to Claim 7.

For each of the different reasons discussed above, it is respectfully submitted (1) that the §102 rejection of Claim 7 improperly relies on multiple different embodiments in Harada, and (2) that none of the multiple cited embodiments in Harada discloses all of the limitations in Claim 7. Claim 7 is therefore believed to be allowable over the indicated portions of Harada, and notice to that effect is respectfully requested.

Independent Claim 16

Independent Claim 16 stands rejected under 35 U.S.C. §102 as anticipated by Harada. This ground of rejection is respectfully traversed, for the following reasons.

First, an explanation of the §102 rejection of Claim 16 appears in lines 4-9 on page 7 of the present Office Action. This explanation mixes references to two distinctly different embodiments in Harada, which are (1) the embodiment of Figures 1A-1B and (2) the embodiment of Figures 36A-36B. Pages 3-4 of the Office Action present marked-up copies of Figures 1A, 1B, 36A and 36B of Harada. Harada explains in paragraph [0072] that Figures 1A-1B show a "first embodiment", and explains in paragraph [0107] that

Figures 36A-36B show a "fifth embodiment". In contrast, as discussed above in association with Claim 1, a proper §102 rejection of Claim 16 must discuss **one and only one embodiment** in Harada. The new rejection of Claim 16 in the present Office Action is therefore not proper, and it is respectfully submitted that this §102 rejection must be withdrawn.

A further problem with this §102 rejection is that Claim 16 is not anticipated by either the embodiment shown in Figures 1A-1B of Harada, or the embodiment shown in Figures 36A-36B of Harada. In this regard, Applicants' Claim 16 recites:

> A structure for metallic features of semiconductor integrating circuits, comprising:
>
> shapes of **all** metallic features imbedded in dielectric layers, that could be formed as squares, are instead configured as m-sided regular polygons, where m is greater than 4.
>
> (Emphasis added).

The device in Figure 1A of Harada has a metallic feature 17 that is embedded in dielectric material, that happens to be rectangular but could be a square, and that is **not** an m-sided regular polygon, where m is greater than 4. The device in Figure 36A of Harada has a similar metallic feature (no reference numeral) that is embedded in dielectric material, that happens to be rectangular but could be a square, and that is **not** an m-sided regular polygon, where m is greater than 4. As evident from the claim limitations quoted above, Claim 16 requires the shapes of **all** metallic features that could be squares to instead be formed as m-sided regular polygons, where m is greater than 4. But this is not the case with the device shown in Figure 1A of Harada, or the device shown in Figure 36A of Harada, due for example to the fact that even though the metallic feature (17 in Figure 1A) could be a square, it is not configured as an m-sided regular polygon, where m is greater than 4. Figure 1A of Harada thus does not disclose everything recited in Claim 16, and therefore does not meet the legal requirements for anticipation, as summarized in

MPEP §2131. Similarly, Figure 36A of Harada thus does not disclose everything recited in Claim 16, and therefore does not meet the legal requirements for anticipation, as summarized in MPEP §2131.

On pages 10-11 of the Office Action, the Examiner offers several arguments against Applicants' position. These arguments have already been discussed above in association with Claim 1. For reasons similar to those discussed above in association with Claim 1, these arguments by the Examiner are believed to be without merit in regard to Claim 16.

For each of the different reasons discussed above, it is respectfully submitted (1) that the §102 rejection of Claim 16 improperly relies on multiple different embodiments in Harada, and (2) that none of the multiple cited embodiments in Harada discloses all of the limitations in Claim 16. Claim 16 is therefore believed to be allowable over the indicated portions of Harada, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-6 and 49, Claims 8-15, and Claims 17-24 respectively depend from Claim 1, Claim 7, and Claim 16, and are also believed to be patentable, for example for the same reasons discussed above with respect to Claims 1, 7 and 16, respectively.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no fee is due in association with the filing of this Response, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP

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Enclosures: None

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